

Federal Communications Commission

§ 15.703

TABLE 4—CONSULTATION AREA COORDINATES FOR LAND STATIONS, SET 1 (1.7–30 MHz)

Command name	Location	Latitude	Longitude
COMMSTA Boston	Maspee, MA	41°24'00" N	70°18'57" W
Camslant	Chesapeake, VA	36°33'59" N	76°15'23" W
COMMSTA Miami	Miami, FL	25°36'58" N	80°23'04" W
COMMSTA New Orleans	Belle Chasse, LA	29°52'40" N	89°54'46" W
Campspac	Pt. Reyes Sta, CA	38°06'00" N	122°55'48" W
COMMSTA Honolulu	Wahiawa, HI	21°31'08" N	157°59'28" W
COMMSTA Kodiak	Kodiak, AK	57°04'26" N	152°28'20" W
Guam	Finegayan, GU	13°53'08" N	144°50'20" E

NOTE: Systems of coordinates conform to NAD 83.

Point of contact: COTHEN Technical Support Center, COTHEN Program Manager, Tel: (800) 829-6336.

TABLE 5—CONSULTATION AREA COORDINATES FOR LAND STATIONS, SET 2 (1.7–30 MHz)

Site name	Latitude	Longitude
Albuquerque, NM	35°05'02" N	105°34'23" W
Arecibo, PR	18°17'26" N	66°22'33" W
Atlanta, GA	32°33'06" N	84°23'35" W
Beaufort, SC	34°34'22" N	76°09'48" W
Cape Charles, VA	37°05'37" N	75°58'06" W
Cedar Rapids, IA	42°00'09" N	91°17'39" W
Denver, CO	39°15'45" N	103°34'23" W
Fort Myers, FL	81°31'20" N	26°20'01" W
Kansas City, MO	38°22'10" N	93°21'48" W
Las Vegas, NV	36°21'15" N	114°17'33" W
Lovelock, NV	40°03'07" N	118°18'56" W
Memphis, TN	34°21'57" N	90°02'43" W
Miami, FL	25°46'20" N	80°28'48" W
Morehead City, NC	34°34'50" N	78°13'59" W
Oklahoma City, OK	34°30'52" N	97°30'52" W
Orlando, FL	28°31'30" N	80°48'58" W
Reno, NV	38°31'12" N	119°14'37" W
Sarasota, FL	27°12'41" N	81°31'20" W
Wilmington, NC	34°29'24" N	78°04'31" W

NOTE: Systems of coordinates conform to NAD 83.

Point Of Contact: ROTH Deputy Program Manager, (540) 653-3624.

TABLE 6—CONSULTATION AREA COORDINATES FOR RADAR RECEIVER STATIONS (1.7–30 MHz)

Latitude/Longitude
18°01' N/66°30' W
28°05' N/98°43' W
36°34' N/76°18' W

NOTE: Systems of coordinates conform to NAD 83.

[70 FR 1374, Jan. 7, 2005, as amended at 71 FR 49379, Aug. 23, 2006]

Subpart H—Television Band Devices

SOURCE: 74 FR 7326, Feb. 17, 2009, unless otherwise noted.

§ 15.701 Scope.

This subpart sets out the regulations for Television Band Devices (TVBDs) which are unlicensed intentional radiators operating on available channels in the broadcast television frequency bands at 54–60 MHz, 76–88 MHz, 174–216 MHz, 470–608 MHz and 614–698 MHz bands.

§ 15.703 Definitions.

(a) *Available channel*. A television channel which is not being used by an authorized user at or near the same geographic location as the TVBD and is acceptable for use by an unlicensed device under the provisions of § 15.709. A TVBD determines television channel availability either from the TV bands database or spectrum sensing.

(b) *Client device*. A TVBD operating in client mode.

(c) *Client mode*. An operating mode in which the transmissions of the TVBD, including frequencies of operation, are under control of the master device. A device in client mode is not able to initiate a network.

(d) *Fixed device*. A TVBD that transmits and/or receives radiocommunication signals at a specified fixed location. Fixed TVBDs may operate as part of a system, transmitting to one or more fixed TVBDs or to personal/portable TVBDs.

(e) *Geo-location*. The capability of a TVBD to determine its geographic coordinates within a specified level of accuracy.

(f) *Master device*. A TVBD operating in master mode.

(g) *Master mode*. An operating mode in which the TVBD has the capability

to transmit without receiving an enabling signal. The TVBD is able to select a channel itself based on a list provided by the database and initiate a network by sending enabling signals to other devices. A network always has at least one device operating in master mode.

(h) *Mode I operation.* Operation of a personal/portable TVBD operating only on the available channel identified by either the fixed TVBD or Mode II TVBD that enables its operation. Mode I operation does not require use of a geo-location capability or access to the TV bands database and requires operation in client mode.

(i) *Mode II operation.* Operation of a personal/portable TVBD whereby the device determines the available channels at its location using its own geo-location and TV bands database access capabilities. Devices operating in Mode II may function as master devices.

(j) *Network initiation.* The process by which a fixed or Mode II TVBD sends control signals to another similar device or to a client device(s) and allows them to begin transmissions.

(k) *Operating channel.* An available channel used by a TVBD for transmission and/or reception.

(l) *Personal/portable device.* A TVBD that transmits and/or receives radiocommunication signals while in motion or at unspecified locations that may change.

(m) *Receive site.* The location where the signal of a full service station is received for rebroadcast by a television translator or low power TV, including Class A TV, station.

(n) *Spectrum sensing.* A process whereby a TVBD monitors a television channel to detect whether the channel is occupied by a radio signal.

(o) *Television band device (TVBD).* Intentional radiators operating on available channels in the broadcast television frequency bands at 54–60 MHz, 76–88 MHz, 174–216 MHz, 470–608 MHz and 614–698 MHz.

(p) *TV bands database.* A database of authorized services in the TV frequency bands that is used to determine the available channels at a given location for use by TVBDs.

§ 15.705 Cross reference.

(a) The provisions of subparts A, B, and C of this part apply to TVBDs, except where specific provisions are contained in subpart H.

(b) The requirements of subpart H apply only to the radio transmitter contained in the TVBD. Other aspects of the operation of a TVBD may be subject to requirements contained elsewhere in this chapter. In particular, a TVBD that includes a receiver that tunes within the frequency range specified in §15.101(b) contains digital circuitry not directly associated with the radio transmitter is also subject to the requirements for unintentional radiators in subpart B.

§ 15.706 Information to the user.

(a) For TV band device, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

This equipment has been tested and found to comply with the rules for TV band devices, pursuant to part 15 of the FCC rules. These rules are designed to provide reasonable protection against harmful interference. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the manufacturer, dealer or an experienced radio/TV technician for help.

(b) In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

§ 15.707 Permissible channels of operation.

(a) All TVBDs are permitted to operate in the frequency bands 512–608 MHz and 614–698 MHz, except that in the 13 metropolitan areas listed § 90.303(a) of this chapter and nearby areas where private land mobile services and commercial land mobile services are authorized by waiver, operation of TVBDs is prohibited on the first channel on each side of TV channel 37 (608–614 MHz) that is available at all locations within the protection range of the coordinates of each such area as set forth in § 15.712(d). These channels will be listed in the TV bands database.

(b) Operation in the bands 54–60 MHz, 76–88 MHz, 174–216 MHz, and 470–512 MHz is permitted only for fixed TVBDs that communicate only with other fixed TVBDs.

(c) Fixed and Mode II TVBDs shall only operate on available channels as determined by the TV bands database and in accordance with the interference avoidance mechanisms of § 15.711.

(d) Mode I TVBDs shall only operate on available channels provided to it from a Fixed or Mode II TVBD.

§ 15.709 General technical requirements.

(a) *Power limits for TVBDs are as follows:* (1) For fixed TVBDs, the maximum conducted output power over the TV channel of operation shall not exceed one watt. Transmitter power will be measured at the antenna input to account for any cable losses between the transmitter and the antenna. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For personal/portable TVBDs, the maximum conducted output power over the TV channel of operation shall not exceed 100 milliwatts; except that for personal/portable TVBDs that do not meet the adjacent channel separation requirements in § 15.712(a), the maximum conducted output power shall not exceed 40 milliwatts. If transmitting antennas of directional gain greater than 0 dBi are used, the maximum

conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 0 dBi.

(3) TVBDs shall incorporate transmit power control to limit their operating power to the minimum necessary for successful communication. Applicants for certification shall include a description of a device's transmit power control feature mechanism.

(4) Maximum conducted output power is the total transmit power in the entire emission bandwidth delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (*e.g.*, alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

(b) *Antenna requirements.* (1) For personal/portable TVBDs, the antenna shall be permanently attached.

(2) The receive antenna used with fixed devices shall be located outdoors at least 10 meters above the ground. The antenna system shall be capable of receiving signals of protected services equally in all directions. The transmit antenna used with fixed devices may not be more than 30 meters above the ground.

(3) For both fixed and personal/portable TVBDs, the provisions of § 15.204(c)(4) do not apply to an antenna used for transmission and reception/spectrum sensing.

(4) For both fixed and personal/portable TVBDs with a separate sensing antenna, compliance testing shall be performed using the lowest gain antenna for each type of antenna to be certified.

(c) Undesirable emission limits for TVBDs are as follows:

(1) In the 6 MHz channels adjacent to the operating channel, emissions from TVBD devices shall be at least 55 dB below the highest average power in the band in which the device is operating.

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(2) The above emission measurements shall be performed using a minimum resolution bandwidth of 100 kHz with an average detector. A narrower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 100 kHz.

(3) At frequencies beyond 6 MHz from the edge of the operating channel, radiated emissions from TVBD devices shall meet the requirements of § 15.209.

(4) Emissions in the band 602–620 MHz must also comply with the following field strength limits at a distance of one meter.

Frequency (MHz)	Field strength dBμV/meter/120 kHz
602–607	120–5[F(MHz)–602]
607–608	95
608–614	30
614–615	95
615–620	120–5[620–F(MHz)]

(5) TVBDs connected to the AC power line are required to comply with the conducted limits set forth in § 15.207.

(d) Compliance with radio frequency exposure requirements. To ensure compliance with the Commission's radio frequency exposure requirements in §§ 1.1307(b), 2.1091 and 2.1093 of this chapter, fixed TVBDs shall be accompanied by instructions on measures to take to ensure that persons maintain a distance of at least 40 cm from the device, as well as any necessary hardware that may be needed to implement that protection. These instructions shall be submitted with the application for certification. Personal/portable TVBDs that meet the definition of portable devices under § 2.1093 of this chapter and that operate with a source-based time-averaged output of less than 20 mW will not be subject to routine evaluation for compliance with the radio frequency exposure guidelines, while devices that operate with a source-based time-average output power greater than 20 mW will be subject to the routine evaluation requirements.

§ 15.711 Interference avoidance mechanisms.

(a) Except as provided in § 15.717, television channel availability for a TVBD is determined based on either the geo-

location and database access mechanism described in paragraph (b) of this section or spectrum sensing described in paragraph (c) of this section.

(1) A TVBD shall rely on the geo-location and database access mechanism to identify available television channels consistent with the interference protection requirements of § 15.712. Such protection will be provided for the following authorized services: digital television stations, digital and analog Class A, low power, translator and booster stations; translator receive operations; fixed broadcast auxiliary service links; private land mobile service/commercial radio service (PLMRS/CMRS) operations; offshore radio-telephone service; and cable system head-ends. In addition, protection shall be provided in border areas near Canada and Mexico in accordance with § 15.712(g).

(2) For low power auxiliary services authorized pursuant to §§ 74.801 through 74.882 of this chapter, including wireless microphones, a TVBD shall rely on the geo-location and database access mechanism to identify available television channels to provide interference protection to registered locations of such operations, consistent with the requirements of § 15.712, and shall rely on spectrum sensing to identify available television channels to provide interference protection to all other operations.

(b) *Geo-location and database access.*

(1) The geographic coordinates of a fixed TVBD shall be determined to an accuracy of ±50 meters by either an incorporated geo-location capability or a professional installer. In the case of professional installation, the party who registers the fixed TVBD in the database will be responsible for assuring the accuracy of the entered coordinates. The geographic coordinates of a fixed TVBD shall be determined at the time of installation and first activation from a power-off condition, and this information may be stored internally in the TVBD. If the fixed TVBD is moved to another location or if the stored coordinates become altered, the operator shall re-establish the device's:

(i) Geographic location and store this information in the TVBD either by means of the device's incorporated geo-

location capability or through the services of a professional installer; and

(ii) Registration with the database based on the device's new coordinates.

(2) A Mode II personal/portable device shall incorporate a geo-location capability to determine its geographic coordinates to an accuracy of ± 50 meters. The device must re-establish its position each time it is activated from a power-off condition.

(3)(i) Fixed devices must access a TV bands database over the Internet to determine the TV channels that are available at their geographic coordinates prior to their initial service transmission at a given location. Operation is permitted only on channels that are indicated in the database as being available for TVBDs. Fixed TVBDs shall access the database at least once a day to verify that the operating channels continue to remain available. Operation must cease immediately if the channel is no longer available.

(ii) Mode II personal/portable devices must access a TV bands database over the Internet to determine the TV channels that are available at their geographic coordinates prior to their initial service transmission at a given location. Operation is permitted only on channels that are indicated in the database as being available for TVBDs. A Mode II personal/portable device must access the database for a list of available channels each time it is activated from a power-off condition and re-check its location and the database for available channels if it changes location during operation. A Mode II personal/portable device that has been in a powered state shall re-check its location and access the database daily to verify that the operating channel(s) continue to be available.

(iii) If a fixed or mode II TVBD fails to contact the TV bands database during any given day, it may continue to operate until 11:59 PM of the following day at which time it must cease operations unless it has contacted the TV bands database during the intervening period.

(iv) Personal/portable devices operating in Mode I shall obtain a list of channels on which they may operate from a master device.

(4) All geographic coordinates shall be referenced to the North American Datum of 1983 (NAD 83).

(c) *Spectrum sensing*—(1) *Detection threshold.* (i) All fixed and personal/portable TVBDs must be capable of detecting ATSC digital TV, NTSC analog TV and wireless microphone signals using analog or digital modulation methods. The required detection thresholds are.

(A) ATSC signals: -114 dBm, averaged over a 6 MHz bandwidth;

(B) NTSC signals: -114 dBm, averaged over a 100 kHz bandwidth;

(C) Wireless microphone signals: -114 dBm, averaged over a 200 kHz bandwidth.

(ii) The detection thresholds are referenced to an omnidirectional receive antenna with a gain of 0 dBi. If a receive antenna with a minimum directional gain of less than 0 dBi is used, the detection threshold shall be reduced by the amount in dB that the minimum directional gain of the antenna is less than 0 dBi. Minimum directional gain shall be defined as the antenna gain in the direction and at the frequency that exhibits the least gain. Alternative approaches for the sensing antenna are permitted, e.g., electronically rotateable antennas, provided the applicant for equipment authorization can demonstrate that its sensing antenna provides at least the same performance as an omnidirectional antenna with 0 dBi gain.

(2) *Low power auxiliary device channel availability check time.* A TVBD may start operating on a TV channel if no wireless microphone or other low power auxiliary device signals above the detection threshold are detected within a minimum time interval of 30 seconds.

(3) *TV channel availability check time.* A TVBD is required to check for TV signals for a minimum time interval of 30 seconds. If a TV signal is detected on a channel indicated as available for use by the database system, the device will provide a notice of that detection to the operator of the device and a means for the operator to optionally remove the channel from the device's list of available channels.

(4) *In-service monitoring.* A TVBD must perform in-service monitoring of an operating channel a minimum of once every 60 seconds. There is no minimum channel availability check time for in-service monitoring.

(5) *Channel move time.* After a wireless microphone or other low power auxiliary device signal is detected on a TVBD operating channel, all transmissions by the TVBD must cease within two seconds.

(6) Personal/portable devices operating in the client mode shall identify to the fixed or Mode II personal/portable device those television channels on which it senses any signals above the detection threshold. The fixed or Mode II device shall respond in accordance with the provisions of this paragraph as if it had detected the signal itself.

(7) TVBDs communicating either directly with one another or linked through a base station must share information on channel occupancy determined by sensing. If any device in a local area group or network determines that a channel is occupied, all other linked devices will also be required to respond in accordance with the provisions of this paragraph as if it had detected the signal itself.

(d) A TVBD must incorporate the capability to display a list of identified available channels and its operating channels.

(e) Fixed TVBDs shall transmit identifying information. The identification signal must conform to a standard established by a recognized industry standards setting organization. The identification signal shall carry sufficient information to identify the device and its geographic coordinates.

(f) If a fixed TVBD device does not have a direct connection to the Inter-

net and has not yet been initialized and registered with the TV bands database, consistent with §15.713, but can receive the transmissions of another fixed TVBD, the device needing initialization may transmit to that other device on either a channel that the other TVBD has transmitted on or on a channel which the other TVBD indicates is available for use to access the database to register its location and receive a list of channels that are available for it to use. Subsequently, the newly registered TVBD must only use the television channels that the database indicates are available for it to use. Such fixed devices must re-contact the database through another fixed device to review their list of available channels at least once every 60 seconds. A fixed device may not operate as a client to another fixed device.

(g) A personal/portable TVBD operating in Mode I may only transmit upon receiving the transmissions of fixed or Mode II TVBD. A personal/portable device operating in Mode I may transmit on either an operating channel of the fixed or Mode II TVBD or on a channel the fixed or Mode II TVBD indicates is available for use.

§ 15.712 Interference protection requirements.

(a) Digital television stations, and digital and analog Class A TV, low power TV, TV translator and TV booster stations:

(1) *Protected contour.* TVBDs must protect digital and analog TV services within the contours shown in the following table. The contours are based on the R-6602 curves contained in §73.699 of this chapter.

Type of station	Protected contour		
	Channel	Contour (dBu)	Propagation curve
Analog: Class A TV, LPTV, translator and booster	Low VHF (2–6)	47	F(50,50)
	High VHF (7–13)	56	F(50,50)
	UHF (14–69)	64	F(50,50)
Digital: Full service TV, Class A TV, LPTV, translator and booster.	Low VHF (2–6)	28	F(50,90)
	High VHF (7–13)	36	F(50,90)
	UHF (14–51)	41	F(50,90)

(2) *Required separation distance.* Fixed TVBDs and personal/portable TVBDs operating in Mode II must be located outside the contours indicated in paragraph (a)(1) of this section of co-channel and adjacent channel stations by at least the minimum distances specified in the following table. Personal/portable TVBDs operating in Mode II must comply with the separation distances specified for an unlicensed device with an antenna height of less than 3 meters. Alternatively, Mode II personal/portable TVBDs may operate at closer separation distances, including inside the contour of adjacent channel stations, provided the power level is reduced as specified in §15.709(a)(2).

Antenna height of unlicensed device	Required separation (km) from digital or analog TV (full service or low power) protected contour	
	Co-channel (km)	Adjacent channel (km)
Less than 3 meters	6.0	0.1
3–Less than 10 meters ...	8.0	0.1
10–30 meters	14.4	0.74

(b) *Translator receive sites and cable headends.* For translator receive sites and cable headends registered in the TV bands database, TVBDs may not operate within an arc of ± 30 degrees from a line between the registered translator or cable headend receive site and the TV station being received within a distance of 80 km from the protected contour for co-channel operation and 20 km from the protected contour for adjacent channel operation. Outside of this ± 30 degree arc, TVBDs may not operate within 8 km from the receive site for co-channel operation and 2 km from the receive site for adjacent channel operation.

(c) *Fixed Broadcast Auxiliary Service (BAS) Links.* For permanent BAS receive sites appearing in the Commission's Universal Licensing System or temporary BAS receive sites registered in the TV bands database, TVBDs may not operate within an arc of ± 30 degrees from a line between the BAS receive site and its associated permanent transmitter within a distance of 80 km from the receive site for co-channel operation and 20 km for adjacent channel operation. Outside this ± 30 degree arc, TVBDs may not operate within 8 km from the receive site for co-channel op-

eration and 2 km from the receive site for adjacent channel operation.

(d) *PLMRS/CMRS operations.* TVBDs may not operate at distances less than 134 km for co-channel operations and 131 km for adjacent channel operations from the coordinates of the metropolitan areas and on the channels listed in §90.303(a) of this chapter. For PLMRS/CMRS operations outside of the metropolitan areas listed in §90.303(a) of this chapter, co-channel and adjacent channel TVBDs may not operate closer than 54 km and 51 km, respectively from a base station.

(e) *Offshore Radiotelephone Service.* TVBDs may not operate on channels used by the Offshore Radio Service within the geographic areas specified in §74.709(e) of this chapter.

(f) *Low power auxiliary services, including wireless microphones.* (1) TVBDs will not be permitted to operate within 1 km of the coordinates of registered wireless microphone sites during designated times on the channels used by wireless microphones.

(2) In the 13 metropolitan areas listed in §90.303(a) of this chapter and nearby areas where private land mobile services and commercial land mobile services are authorized by waiver, operation of TVBDs will not be permitted to operate on the first channel on each side of TV channel 37 (608–614 MHz) that is available, i.e., not occupied by a licensed service, at all locations within the protection range of the coordinates of each such area as set forth in §15.712(d).

(g) *Border areas near Canada and Mexico.* (1) Fixed and personal/portable TVBDs shall not operate within 32 kilometers of the Canadian Border.

(2) Fixed and personal/portable TVBDs shall not operate within 40 kilometers of the Mexican border on UHF channels, or within 60 kilometers of that border on VHF channels.

(h) *Radio astronomy services.* Operation of fixed and personal/portable TVBDs is prohibited on all channels within 2.4 kilometers at the following locations.

(1) The Naval Radio Research Observatory in Sugar Grove, West Virginia.

(2) The Table Mountain Radio Receiving Zone (TMRZ) at 40°07'50" N and 105°15'40" W.

(3) The following facilities.

Observatory	Longitude (deg/min/sec)	Latitude (deg/min/sec)
Allen Telescope Array	121°28'24" W	40°49'04" N.
Arecibo Observatory	066°45'11" W	18°20'46" N.
Green Bank Telescope (GBT)	079°50'24" W	38°25'59" N.
Very Large Array (VLA)	107°37'04" W	34°04'44" N.
Very Long Baseline Array (VLBA) Stations:		
Pie Town, AZ	108°07'07" W	34°18'04" N.
Kitt Peak, AZ	111°36'42" W	31°57'22" N.
Los Alamos, NM	106°14'42" W	35°46'30" N.
Ft. Davis, TX	103°56'39" W	30°38'06" N.
N. Liberty, IA	091°34'26" W	41°46'17" N.
Brewster, WA	119°40'55" W	48°07'53" N.
Owens Valley, CA	118°16'34" W	37°13'54" N.
St. Croix, VI	064°35'03" W	17°45'31" N.
Hancock, NH	071°59'12" W	42°56'01" N.
Mauna Kea, HI	155°27'29" W	19°48'16" N.

§ 15.713 TV bands database.

(a) *Purpose.* The TV bands database serves the following functions:

(1) To determine and provide to a TVBD, upon request, the available TV channels at the TVBD's location. Available channels are determined based on the interference protection requirements in § 15.712.

(2) To register the identification information and location of fixed TVBDs.

(3) To register protected locations and channels as specified in paragraph (b)(2) of this section, that are not otherwise recorded in Commission licensing databases.

(b) *Information in the TV bands database.* (1) Facilities already recorded in Commission databases. Identifying and location information will come from the official Commission database. These services include:

- (i) Digital television stations.
- (ii) Class A television stations.
- (iii) Low power television stations.
- (iv) Television translator and booster stations.
- (v) Broadcast Auxiliary Service stations (including receive only sites), except low power auxiliary stations.
- (vi) Private land mobile radio service stations.
- (vii) Commercial mobile radio service stations.
- (viii) Offshore radiotelephone service stations.

(2) Facilities that are not recorded in Commission databases. Identifying and location information will be entered into the TV bands database in accordance with the procedures established

by the TV bands database administrator(s). These include:

- (i) Cable television headends.
- (ii) Class A television station receive sites.
- (iii) Low power television station receive sites.
- (iv) Television translator station receive sites.
- (v) Sites where low power auxiliary stations, including wireless microphones and wireless assist video devices, are used and their schedule for operation.
- (vi) Fixed TVBD registrations.

(c) *Restrictions on registration.* (1) Television translator, low power TV and Class A station receive sites within the protected contour of the station being received are not eligible for registration in the database.

(2) Cable television headends within the protected contour of a television channel are not eligible to register that channel in the database.

(d) *Determination of available channels.* The TV bands database will determine the available channels at a location using the interference protection requirements of § 15.712, the location information supplied by a TVBD, and the data for protected stations/locations in the database. The TV bands database will also check for proximity of a TVBD to the Canadian and Mexican borders where operation may be prohibited pursuant to § 15.712(g).

(e) *TVBD initialization.* (1) Fixed and Mode II TVBDs must provide their location and required identifying information to the TV bands database in accordance with the provisions of paragraph (b) of this section.

(2) Fixed and Mode II TVBDs shall not transmit unless they receive, from the TV bands database, a list of available channels.

(3) Fixed TVBDs register and receive a list of available channels from the database by connecting to the Internet, either directly or through another fixed TVBD.

(4) Mode II TVBDs register and receive a list of available channels from the database by connecting to the Internet, either directly or through a fixed TVBD.

(f) *Fixed TVBD registration.* (1) Prior to operating for the first time or after changing location, a fixed TVBD must register with the TV bands database by providing the information listed in paragraph (f)(3) of this section.

(2) The party responsible for a fixed TVBD must ensure that the TVBD registration database has the most current, up-to-date information for that device.

(3) The TVBD registration database shall contain the following information for fixed TVBDs:

(i) FCC identifier (FCC ID) of the device.

(ii) Manufacturer's serial number of the device.

(iii) Device's geographic coordinates (latitude and longitude (NAD 83) accurate to ± 50 m).

(iv) Name of the individual or business that is responsible for the device.

(v) Name of a contact person responsible for the device's operation.

(vi) Address for the contact person.

(vii) E-mail address for the contact person.

(viii) Phone number for the contact person.

(g) A personal/portable device operating in Mode II shall provide the database its FCC Identifier (as required by § 2.926 of this chapter), serial number as assigned by the manufacturer, and the device's geographic coordinates (latitude and longitude (NAD 83) accurate to ± 50 m)

(h) The TV bands database shall contain the listed information for each of the following:

(1) Digital television stations, digital and analog Class A, low power, translator and booster stations:

(i) Transmitter coordinates (latitude and longitude in NAD 83).

(ii) Effective radiated power (ERP).

(iii) Height above average terrain of the transmitting antenna (HAAT).

(iv) Horizontal transmit antenna pattern (if the antenna is directional).

(v) Channel number.

(vi) Station call sign.

(2) Broadcast Auxiliary Service.

(i) Transmitter coordinates (latitude and longitude in NAD 83).

(ii) Receiver coordinates (latitude and longitude in NAD 83).

(iii) Channel number.

(iv) Call sign.

(3) Metropolitan areas listed in § 90.303(a) of this chapter.

(i) Region name.

(ii) Channel(s) reserved for use in the region.

(iii) Geographic center of the region (latitude and longitude in NAD 83).

(iv) Call sign.

(4) PLMRS/CMRS base station operations located more than 80 km from the geographic centers of the 13 metropolitan areas defined in § 90.303(a) of this chapter (*e.g.*, in accordance with a waiver).

(i) Transmitter location (latitude and longitude in NAD 83) or geographic area of operations.

(ii) Effective radiated power.

(iii) Transmitter height above average terrain (if specified).

(iv) Antenna height above ground level (if specified).

(v) Call sign.

(5) Offshore Radiotelephone Service. For each of the four regions where the Offshore Radiotelephone Service operates.

(i) Geographic boundaries of the region (latitude and longitude in NAD 83 for each point defining the boundary of the region).

(ii) Channel(s) used by the service in that region.

(6) Cable Television headends.

(i) Name and address of cable company.

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(ii) Location of the headend receiver (latitude and longitude in NAD 83, accurate to ± 50 m).

(iii) Channel number of each television channel received, subject to the following condition: channels for which the cable headend is located within the protected contour of that channel's transmitting station are not eligible for registration in the database.

(iv) Call sign of each television channel received and eligible for registration.

(v) Location (latitude and longitude) of the transmitter of each television channel received.

(7) Television translator, low power TV and Class A TV station receive sites.

(i) Call sign of the TV translator station.

(ii) Location of the TV translator receive site (latitude and longitude in NAD 83, accurate to ± 50 m).

(iii) Channel number of the re-transmitted television station, subject to the following condition: a channel for which the television translator receive site is located within the protected contour of that channel's transmitting station is not eligible for registration in the database.

(iv) Call sign of the retransmitted television station.

(v) Location (latitude and longitude) of the transmitter of the retransmitted television station.

(8) Low power auxiliary stations, including wireless microphones and wireless assist video devices. Sites with significant wireless microphone use at well defined times and locations may be registered in the database. Multiple registrations that specify more than one point in the facility may be entered for very large sites. Registrations will be valid for no more than one year, after which they may be renewed.

(i) Name of the individual or business that owns the low power auxiliary device(s).

(ii) An address for the contact person.

(iii) An e-mail address for the contact person (optional).

(iv) A phone number for the contact person.

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(v) Coordinates where the device(s) are used (latitude and longitude in NAD 83, accurate to ± 50 m).

(vi) Channels used by the low power auxiliary devices operated at the site.

(vii) Specific months, days and times when the device(s) are used.

(i) Commission requests for data. (1) A TV bands database administrator must provide to the Commission, upon request, any information contained in the database.

(2) A TV bands database administrator must remove information from the database, upon direction, in writing, by the Commission.

EFFECTIVE DATE NOTE: At 74 FR 7326, Feb. 17, 2009, §15.713 was added. This section contains information collection and record-keeping requirements and will not become effective until approval has been given by the Office of Management and Budget.

§ 15.714 TV bands database administration fees.

(a) A TV bands database administrator may charge a fee for provision of lists of available channels to fixed and personal/portable TVBDs and for registering fixed TVBDs and temporary BAS links.

(b) The Commission, upon request, will review the fees and can require changes in those fees if they are found to be excessive.

EFFECTIVE DATE NOTE: At 74 FR 7326, Feb. 17, 2009, §15.714 was added. This section contains information collection and record-keeping requirements and will not become effective until approval has been given by the Office of Management and Budget.

§ 15.715 TV bands database administrator.

The Commission will designate one or more entities to administer a TV bands database. Each database administrator shall:

(a) Maintain a database that contains the information described in §15.713.

(b) Establish a process for acquiring and storing in the database necessary and appropriate information from the Commission's databases and synchronizing the database with the current Commission databases at least once a week to include newly licensed facilities or any changes to licensed facilities.

(c) Establish a process for registering fixed TVBDs and registering and including in the database facilities entitled to protection but not contained in a Commission database, including cable headends and TV translator receiver sites.

(d) Establish a process for registering facilities where part 74 low power auxiliary devices are used on a regular basis.

(e) Provide lists of available channels to fixed and personal/portable TVBDs that submit to it the information required under §15.713(f) based on their geographic location.

(f) Make its services available to all unlicensed TV band device users on a non-discriminatory basis.

(g) Provide service for a five-year term. This term can be renewed at the Commission's discretion.

(h) Respond in a timely manner to verify, correct and/or remove, as appropriate, data in the event that the Commission or a party brings claim of inaccuracies in the database to its attention.

(i) Transfer its database along with the IP addresses and URLs used to access the database and list of registered Fixed TVBDs, to another designated entity in the event it does not continue as the database administrator at the end of its term. It may charge a reasonable price for such conveyance.

(j) The database must have functionality such that upon request from the Commission it can indicate that no channels are available when queried by a specific TVBD or model of TVBDs.

(k) If more than one database is developed, the database administrators shall cooperate to develop a standardized process for providing on a daily basis or more often, as appropriate, the data collected for the facilities listed in §15.713(b)(2) to all other TV bands databases to ensure consistency in the records of protected facilities.

EFFECTIVE DATE NOTE: At 74 FR 7326, Feb. 17, 2009, §15.715 was added. This section contains information collection and record-keeping requirements and will not become effective until approval has been given by the Office of Management and Budget.

§ 15.717 TVBDs that rely on spectrum sensing.

(a) Parties may submit applications for certification of TVBDs that rely solely on spectrum sensing to identify available channels. Devices authorized under this section must demonstrate with an extremely high degree of confidence that they will not cause harmful interference to incumbent radio services.

(1) In addition to the procedures in subpart J of part 2 of this chapter, applicants shall comply with the following.

(i) The application must include a full explanation of how the device will protect incumbent authorized services against interference.

(ii) Applicants must submit a pre-production device, identical to the device expected to be marketed.

(2) The Commission will follow the procedures below for processing applications pursuant to this section.

(i) Applications will be placed on public notice for a minimum of 30 days for comments and 15 days for reply comments. Applicants may request that portions of their application remain confidential in accordance with §0.459 of this chapter. This public notice will include proposed test procedures and methodologies.

(ii) The Commission will conduct laboratory and field tests of the pre-production device. This testing will be conducted to evaluate proof of performance of the device, including characterization of its sensing capability and its interference potential. The testing will be open to the public.

(iii) Subsequent to the completion of testing, the Commission will issue by public notice, a test report including recommendations. The public notice will specify a minimum of 30 days for comments and, if any objections are received, an additional 15 days for reply comments.

(b) The device shall meet the requirements for personal/portable devices in this subpart except that it will be limited to a maximum EIRP of 50 mw and it does not have to comply with the requirements for geo-location and database access in §15.711(b). Compliance

with the detection threshold for spectrum sensing in §15.711(c), although required, is not necessarily sufficient for demonstrating reliable interference avoidance. Once a device is certified, additional devices that are identical in electrical characteristics and antenna systems may be certified under the procedures of part 2, subpart J of this chapter.

EFFECTIVE DATE NOTE: At 74 FR 7326, Feb. 17, 2009, §15.717 was added. This section contains information collection and record-keeping requirements and will not become effective until approval has been given by the Office of Management and Budget.

PART 17—CONSTRUCTION, MARKING, AND LIGHTING OF ANTENNA STRUCTURES

Subpart A—General Information

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- 17.57 Report of radio transmitting antenna construction, alteration and/or removal.
- 17.58 Facilities to be located on land under the jurisdiction of the U.S. Forest Service or the Bureau of Land Management.

AUTHORITY: Secs. 4, 303, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303. Interpret or apply secs. 301, 309, 48 Stat. 1081, 1085 as amended; 47 U.S.C. 301, 309.

Subpart A—General Information

§ 17.1 Basis and purpose.

(a) The rules in this part are issued pursuant to the authority contained in Title III of the Communications Act of 1934, as amended, which vest authority in the Federal Communications Commission to issue licenses to radio stations when it is found that the public interest, convenience, and necessity would be served thereby, and to require the painting, and/or illumination of antenna structures if and when in its judgment such structures constitute, or there is reasonable possibility that they may constitute, a menace to air navigation.

(b) The purpose of this part is to prescribe certain procedures for antenna structure registration and standards with respect to the Commission's consideration of proposed antenna structures which will serve as a guide to antenna structure owners. The standards are referenced from two Federal Aviation Administration (FAA) Advisory Circulars.

[61 FR 4362, Feb. 6, 1996]

§ 17.2 Definitions.

(a) *Antenna structure.* The term antenna structure includes the radiating and/or receive system, its supporting structures and any appurtenances mounted thereon.

(b) An antenna farm area is defined as a geographical location, with established boundaries, designated by the Federal Communications Commission, in which antenna towers with a common impact on aviation may be grouped.